NOTES ON THE PLEISTOCENE NON-MARINE MOLLUSCA AT PORTLAND BILL; AND ON HOLOCENE NON-MARINE MOLLUSCA FROM (1) WEST HARNHAM, WILTS; (2) HARLTON, CAMBRIDGESHIRE; (3) THE DOWN ABOVE DURDLE BARN DOOR, DORSET; AND (4) FOLKESTONE.

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I. Portland Bill.

During a visit to Portland Bill on June 23rd, 1902, I was able to add one more definite species to the mollusca of the late Pleistocene deposit near the Bill. Two specimens of *Helix nemoralis* were found. Hitherto the *Helix*-shells have not been specifically identifiable.

Limnæa pereger and *Limnæa truncatula* were also met with on this occasion in greater abundance. Numerically the relative quantities obtained have been as follows:—

Species.	1894.	1900.	1902.	Total.
Helicella itala (Linn.)	—	2	9	11
Hygromia hispida (Linn.)	1	—	—	1
Hygromia rufescens (Penn.)	—	10	16	26
Vallonia pulchella (Müll.)	5	—	1	6
Helix nemoralis, Linn.	—	—	2	2
Helix, sp.	—	1	1	2
Pupa muscorum (Linn.)	56	28	136	220
Succinea oblonga, Drap.	41	9	14	64
Limnæa pereger (Müll.)	4	22	29	55
Limnæa truncatula (Müll.)	—	16	44	60
Pomatias elegans (Müll.)	1	—	—	1
Pisidium, sp.	1	—	—	1

The curious feature of the above list (for 1902) is the abundance of three forms, *P. muscorum*, *Limnæa pereger*, and *L. truncatula*, the diminished number of *S. oblonga*, and the comparative scarcity of such generally abundant Pleistocene forms as *Helix nemoralis* and *Pomatias elegans*. But, as Sir Joseph Prestwich used to say, "Quaternary geology has many blanks."

The records for 1894 and 1900 were published in the Geological Magazine, pp. 431 and 286 of the respective years. The pale single-banded variety of *H. nemoralis* represented at Portland Bill is still abundant at White Nore on the Dorset coast. Very large specimens also occur at Harlyn Bay, Cornwall, in the kitchen midden just outside the late Celtic cemetery, and Dr Scharff has recently sent me three fine and massive specimens from Dog's Bay, Connemara.

II. West Harnham, near Salisbury.

The shells mentioned in the following list were procured from a Holocene rainwash clearly exposed in the West Harnham Chalk-pit. The depth of the deposit varied from 5 feet at the bottom of the hill to 2 feet at the top of the pit, which is considerably below the summit of the hill. The shells are not plentiful:—

Arion ater (Linn.).
Helicella itala (Linn.).
Hygromia hispida (Linn.).
Vallonia pulchella (Müll.).
Helicigona arbustorum (Linn.).
Helix nemoralis, Linn.
Azeca tridens (Pult.).
Cæcilianella acicula (Müll.).
Pupa muscorum (Linn.).
Pomatias elegans (Müll.).

III. Harlton, Cambridgeshire.

This place is about 8 miles from Cambridge. The Rector is the veteran geologist, the Rev. Osmond Fisher, F.G.S. The shells were collected in 1895, 1897, and 1899, from a field opposite the pond, and just across the road. Mr. Fisher, on my inquiring in 1895 about the occurrence of *Helicigona arbustorum* in his neighbourhood, told me that he had seen and taken a living specimen about thirty years before. The field has been partly worked for coprolites (Lower Greensand), but the part from which the mollusca came has not been disturbed by such operations. The shells are cast out by moles with the soil. A small piece of unglazed Romano-British pottery, turned on the wheel, gives the date of the deposit, which is interesting from the abundance of *H. arbustorum* in a sub-fossil condition. The mixture of fresh-water shells and the number of species of *Vertigo* and *Limax* present, including *Milax gagates* (Drap.), point to paludal conditions which ceased many centuries ago. The species represented are:—

Limax maximus,[1] Linn.
Limax arborum, Bouchard-Chantereaux.
Agriolimax agrestis (Linn.).
Agriolimax lævis (Müll.).
Milax gagates (Drap.).
Vitrea crystallina (Müll.).
Vitrea nitidula (Drap.).
Vitrea radiatula (Alder).
Arion ater (Linn.).
Pyramidula rotundata (Müll.).
Helicella itala (Linn.).
Hygromia hispida (Linn.).
Vallonia pulchella (Müll.).
Helicigona lapicida (Linn.).
Helicigona arbustorum (Linn.).
Helix nemoralis, Linn.
Cochlicopa lubrica (Müll.).
Cæcilianella acicula (Müll.).
Pupa cylindracea (Da C.).
Pupa muscorum (Linn.).
Vertigo antivertigo (Drap.).
Vertigo pygmæa (Drap.).
Vertigo angustior, Jeff.
Clausilia bidentata (Ström.).
Succinea putris (Linn.).[2]
Carychium minimum (Müll.).
Limnæa truncatula (Müll.).
Planorbis marginatus (Drap.).
Pomatias elegans (Müll.).

[1] Specimen unfortunately lost, but undoubtedly correct, both from its size and having the apex at the right upper corner.
[2] Dwarfed variety.

Helix aspersa also occurred, but since it was not among the ejecta of the mole-heaps it is not included in the above list, although it resembles the other shells in condition.

IV. The Down above Durdle Barn Door and behind Swyre Head, Dorset.

I examined the cliff-section where accessible for a deposit resembling the late Pleistocene deposit at Portland Bill, but was unsuccessful. I then turned my attention to the ejecta of the mole-hills and rabbit-warrens. The list of finds was as under:—

Vitrea nitidula (Drap.).
Arion ater (Linn.).
Pyramidula rotundata (Müll.).
Helicella itala (Linn.).
Helicella virgata (Da C.).
Hygromia hispida (Linn.).
Vallonia pulchella (Müll.).
Helix aspersa, Müll.
Helix nemoralis, Linn.
Ena obscura (Müll.).
Pupa secale, Drap.
Pupa muscorum (Linn.).
Vertigo pygmæa (Drap.).
Pomatias elegans (Müll.).

V. Folkestone.

The following species were procured from a section exposed by the cutting of a wide driving-road under the South Downs at the back of the town, about a mile from the sea. Unfortunately, my time was rather short, or no doubt the list of species would be longer.

The general nature of the section examined is similar to the Neolithic and Roman layers exposed at Buckland, near Dover, in 1878, and described by me in these "Proceedings," vol. iii, p. 162.

Helix aspersa is especially in evidence. The section exposed varies in depth from about 4 to 6 feet and over. The list of shells is as follows:—

Arion ater (Linn).
Helicella itala (Linn.).
Helicella cantiana (Montagu).
Helicella cartusiana (Müll.).
Hygromia rufescens (Penn.).
Hygromia hispida (Linn.).
Vallonia pulchella (Müll.).
Helix aspersa, Müll.
Helix nemoralis, Linn.

In conclusion, I have to thank my old friend the Rev. Osmond Fisher for invaluable information about the Harlton deposit and guidance to the undisturbed part of the field, and Mr. B. B. Woodward for identifying the specimens of *Vertigo* from Harlton, and the mutilated shells of *P. secale* and *E. obscura* from above Durdle Barn Door; the latter is more strongly striated than usual, and *P. secale* has lost its peristome and part of the body-whorl. Mr. Woodward also agrees with my identification of *M. gagates*.